

# ALLISON MODEL 659 AMPLIFIER MODULE

A VERSATILE THREE-STAGE, SOLID-STATE, AMPLIFIER



The Model 659 Amplifier Module is a low-noise, self-contained amplifier package which may have either fixed or adjustable gain. Gain can be controlled by selection of the resistance in the feedback loop. The maximum recommended voltage gain is 40 db. The amplifier delivers 60 milliwatts into 600 ohms, 100 milliwatts into 300 ohms, or more than 6 volts into any impedance above 600 ohms.

An output impedance of 5 ohms or less makes the amplifier ideal for working into long lines with minimum hum pickup and loss of high frequencies.

In addition to providing for adjustable gain, the open feedback loop permits the insertion of equalizing networks or tuned circuits for selective amplification.

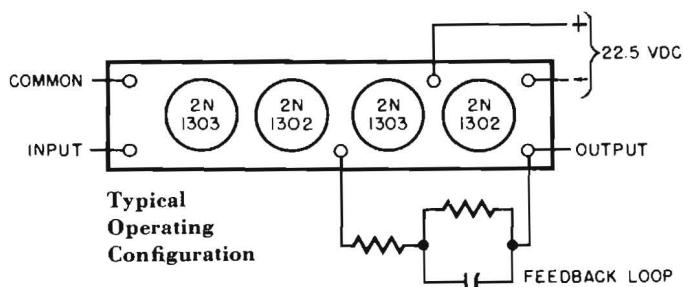
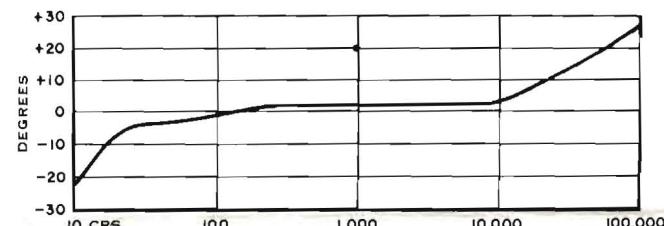
The Model 659 has welded and encapsulated circuit components for high level environmental protection. All transistors are mounted in molded-in sockets to provide versatility and simplicity of transistor replacement. This feature permits transistors to be substituted or selected for greater temperature stability, increased frequency response or greater signal-to-noise ratio.

Some typical uses for the Allison 659 are: (1) As a driver-amplifier for a meter rectifier system, recorder or counter; (2) As a telephone line amplifier; (3) As a selective amplifier. The 659 can be combined with the Allison Model 660 Preamplifier and the Model 671 Meter System to form a voltmeter with sensitivity as great as .001 volts rms full scale meter reading and frequency response flat from 10 cps to 400 kcps.

## FEATURES

- Low Noise • Fixed or Adjustable Gain
- Wide Bandwidth • Wide Dynamic Range
- Selective Amplification • Miniature
- Low Output Impedance • Solid State
- Non-Microphonic • Welded Construction
- Service-Free Operation • Low Cost
- Encapsulated • High Input Impedance
- Shock and Vibration Resistant

TYPICAL PHASE SHIFT



## PRICES AND DELIVERY

1 - 4	• . . . .	\$37.50
5 - 9	• . . . .	\$33.50
10 - 24	• . . . .	\$31.25
25 - 49	• . . . .	\$29.50
50 - 100	• . . . .	\$27.80

DELIVERY — STOCK TO 10 DAYS  
F.O.B. — LA HABRA

See reverse side of sheet for full electrical and mechanical specifications, prices, and delivery information.



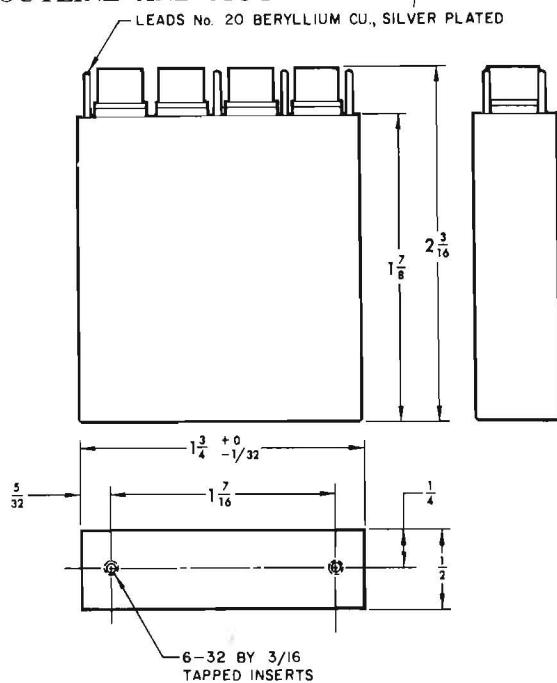
*Proved dependable in years of service*

**Allison Laboratories, Inc.**

POST OFFICE BOX 515 • LA HABRA, CALIFORNIA

# MODEL 659 SPECIFICATIONS

## OUTLINE AND MOUNTING DIMENSIONS



**Note:** In the specifications given herewith, data is supplied for two values of feedback resistance resulting in gain of either 30 or 40 db. This is done to illustrate the fact that the characteristics of the amplifier may be varied to suit a particular application.

**WEIGHT** 1.7 oz.

**GAIN AT 1 KCPS**

30 db to 40 db (operation below 25 db is not recommended).

**GAIN STABILITY**

Constant  $\pm .5$  db from  $0^\circ\text{C}$ . to  $50^\circ\text{C}$ .

**LOAD IMPEDANCE:** Minimum recommended load impedance is 600 ohms. Amplifier will not be damaged by loads down to 200 ohms with input voltages up to 2.0 volts RMS.

**AVERAGE CURRENT**

Average no signal current is 2.2 ma. Current goes up to 17 ma with maximum signal output (depending upon load).

**SIGNAL-TO-NOISE RATIO**

90 db with 40 db gain and 22.5 VDC (input shorted).

## IMPEDANCE

Input (Minimum)		Output (Maximum)	
30 db	40 db	30 db	40 db
40K	40K	2 ohms	2 ohms

**NOTES:** Temperature variation of  $0^\circ$  to  $50^\circ\text{C}$ . will cause negligible change.

## OUTPUT VOLTAGE

(Maximum for $\frac{1}{2}$ db below overload)			
30 db		40 db	
No Load	600 ohms	No Load	600 ohms
6.0	6.0	6.0	6.0

## FREQUENCY RESPONSE

Low End: Flat Midband to 10 cps $\pm 0.6$ db		
High End: (Dependent upon gain as shown)		
Voltage	Gain	$-1$ db point
22.5	30 db	400 KCPS (Min.)
22.5	40 db	100 KCPS (Min.)

## HARMONIC DISTORTION

Taken at 1 KCPS and $-3$ db from overload			
22.5 VDC			
30 db		40 db	
2nd	3rd	2nd	3rd
.15%	.11%	.25%	.20%

## INTERMODULATION DISTORTION

400 CPS and 4000 CPS mixed 4:1	
22.5 VDC	
30 db	
1.0%	
1.0%	

## EQUIVALENT INPUT NOISE (MV)

22.5 VDC			
30 db		40 db	
S	O	S	O
0.35	5.9	1.0	16.2

S = Shorted Input

O = Open Input

Taken at  $25^\circ\text{C}$ . and Bandwidth limited to 35 KCPS